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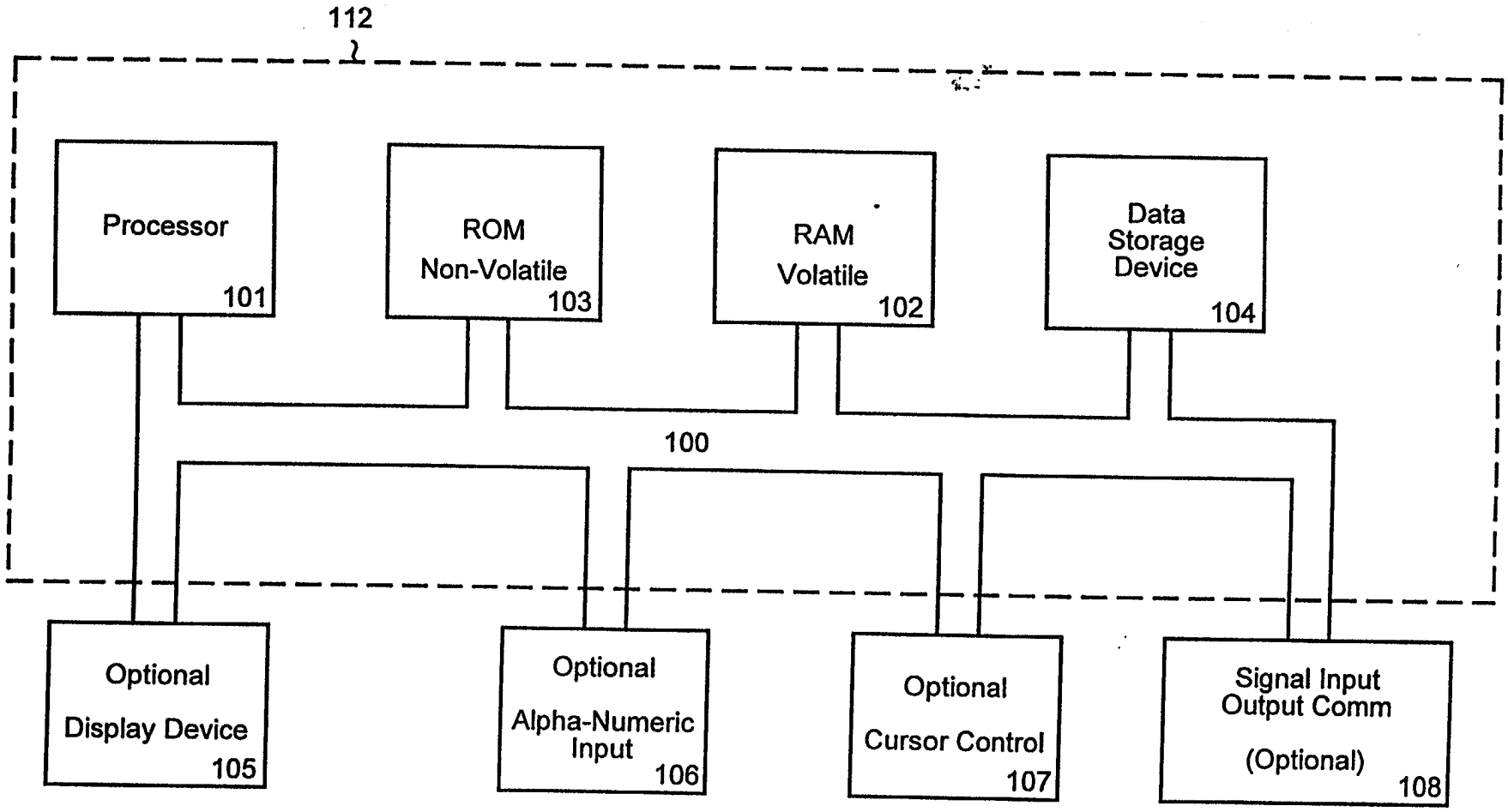

FIG. 1

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Engineer's Computation Pad

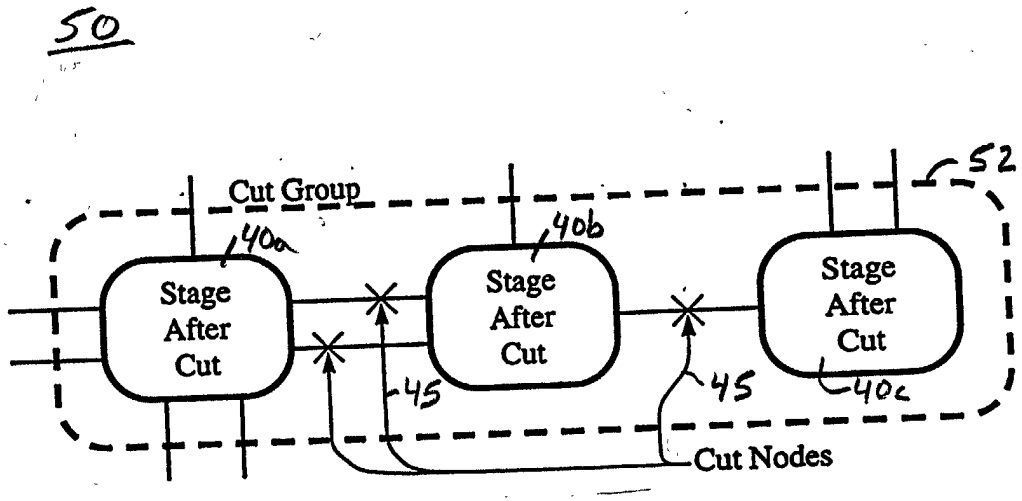

FIG. 2

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$$\begin{bmatrix} \sum_s g_{1,1,s} & \sum_s g_{1,2,s} & \cdots & \sum_s g_{1,n,s} \\ \sum_s g_{2,1,s} & \sum_s g_{2,2,s} & \cdots & \sum_s g_{2,n,s} \\ \cdots & \cdots & \cdots & \cdots \\ \sum_s g_{m,1,s} & \sum_s g_{m,2,s} & \cdots & \sum_s g_{m,n,s} \end{bmatrix} \begin{bmatrix} dv_1 \\ dv_2 \\ \cdots \\ dv_n \end{bmatrix} = \begin{bmatrix} -\sum_s i_{1,s} \\ -\sum_s i_{2,s} \\ \cdots \\ -\sum_s i_{m,s} \end{bmatrix}$$

←150
EQ(2)

FIG. 3

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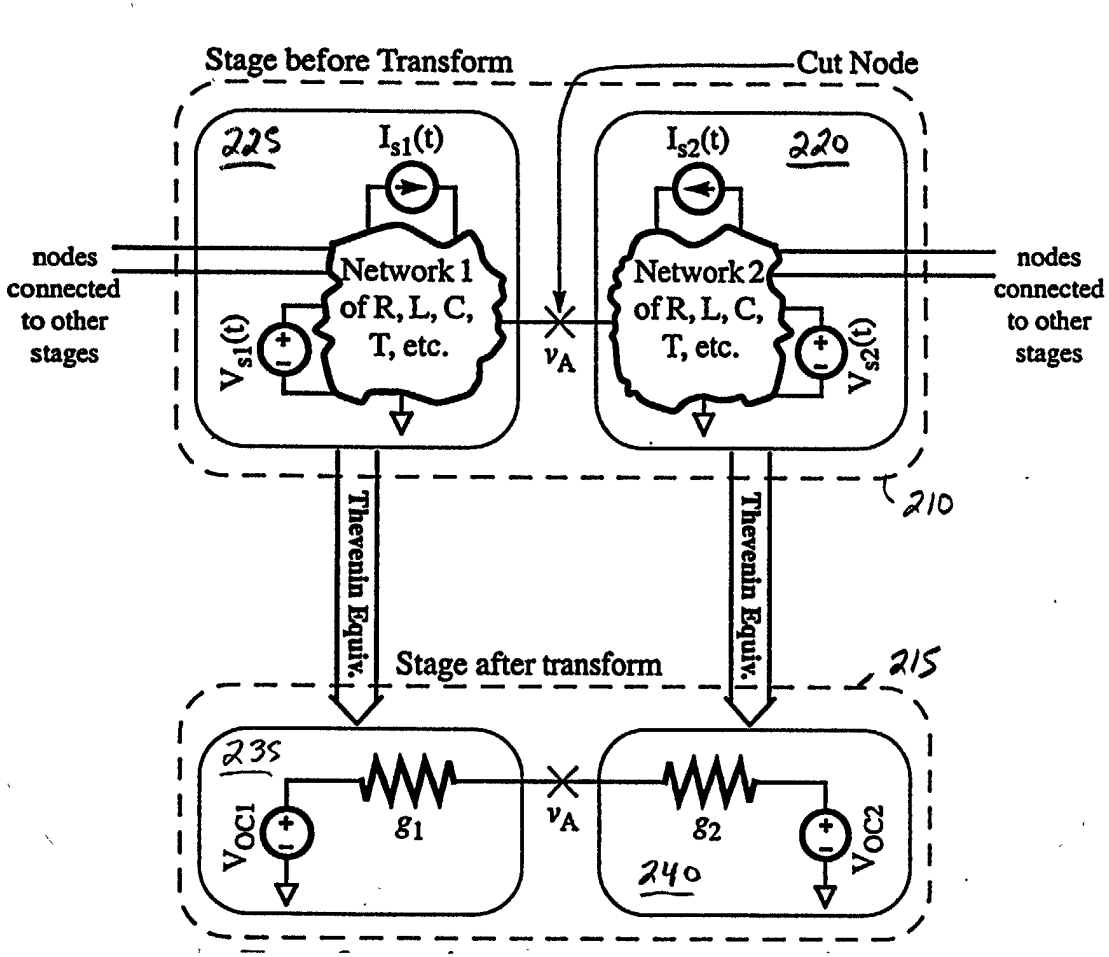

FIG. 4

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260

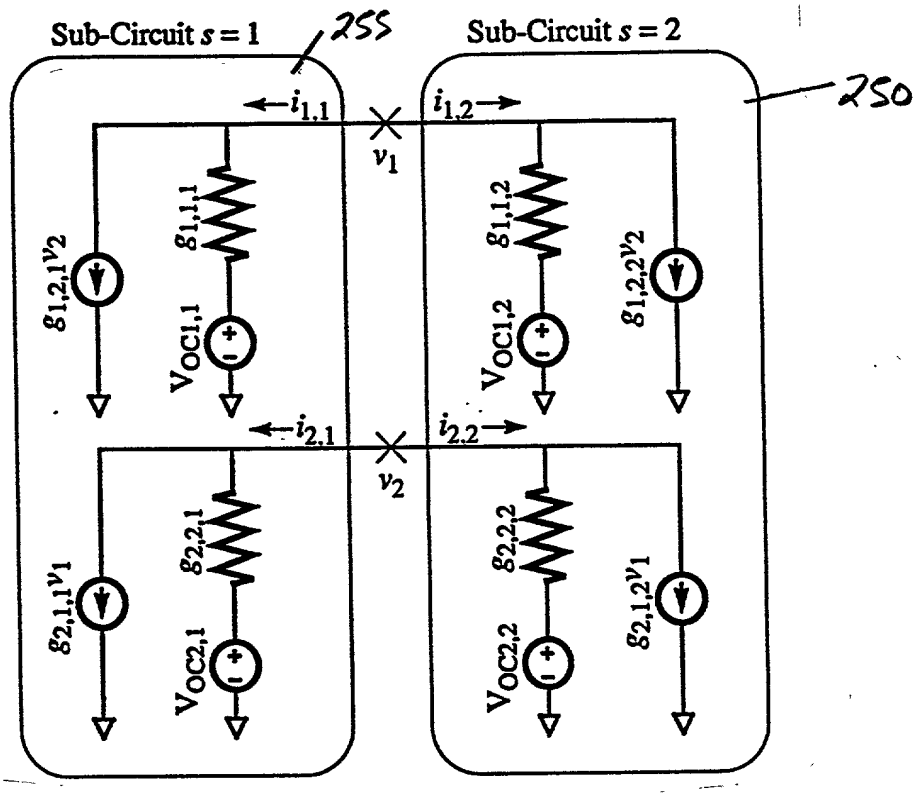

FIG. 5

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270

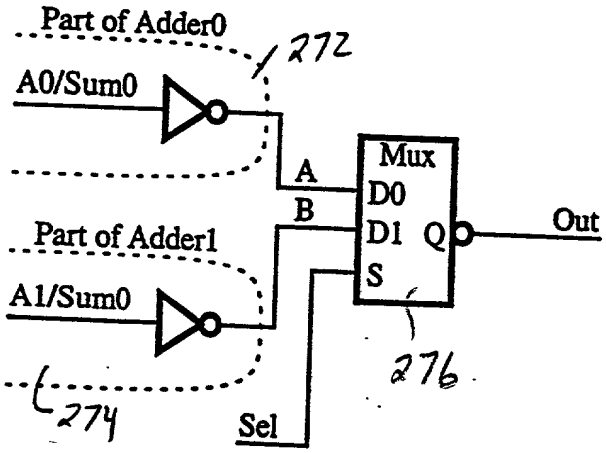

FIG. 6

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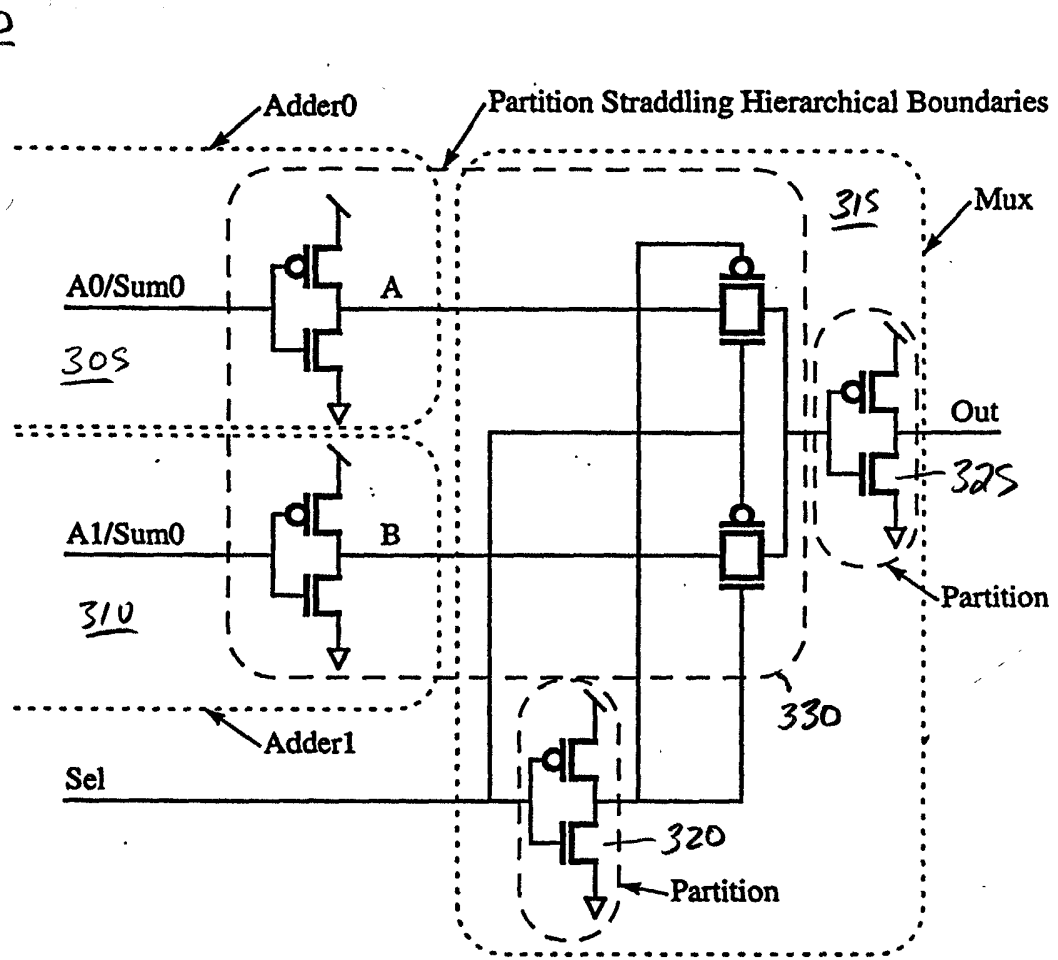

FIG. 7

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Engineer's Computation Pad

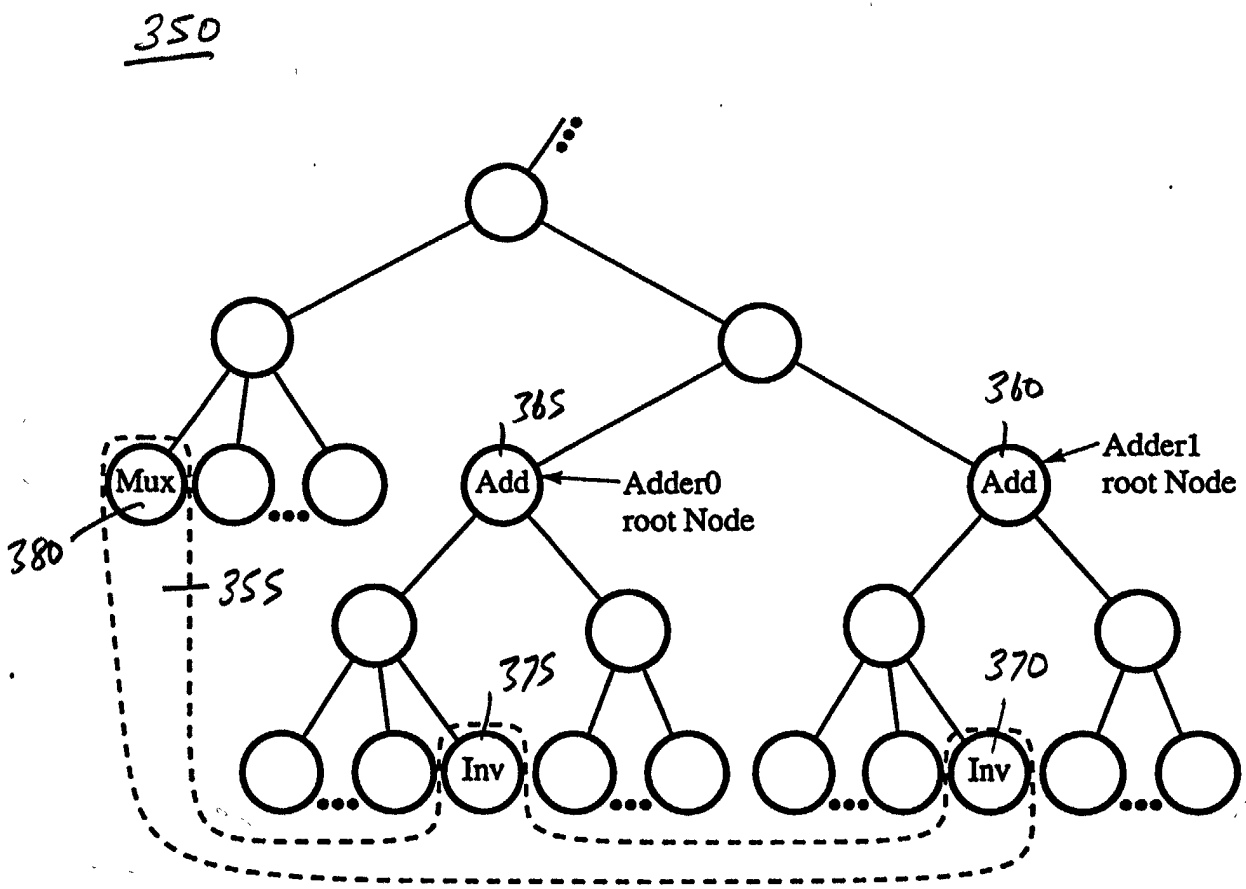

FIG. 8

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Engineer's Computation Pad

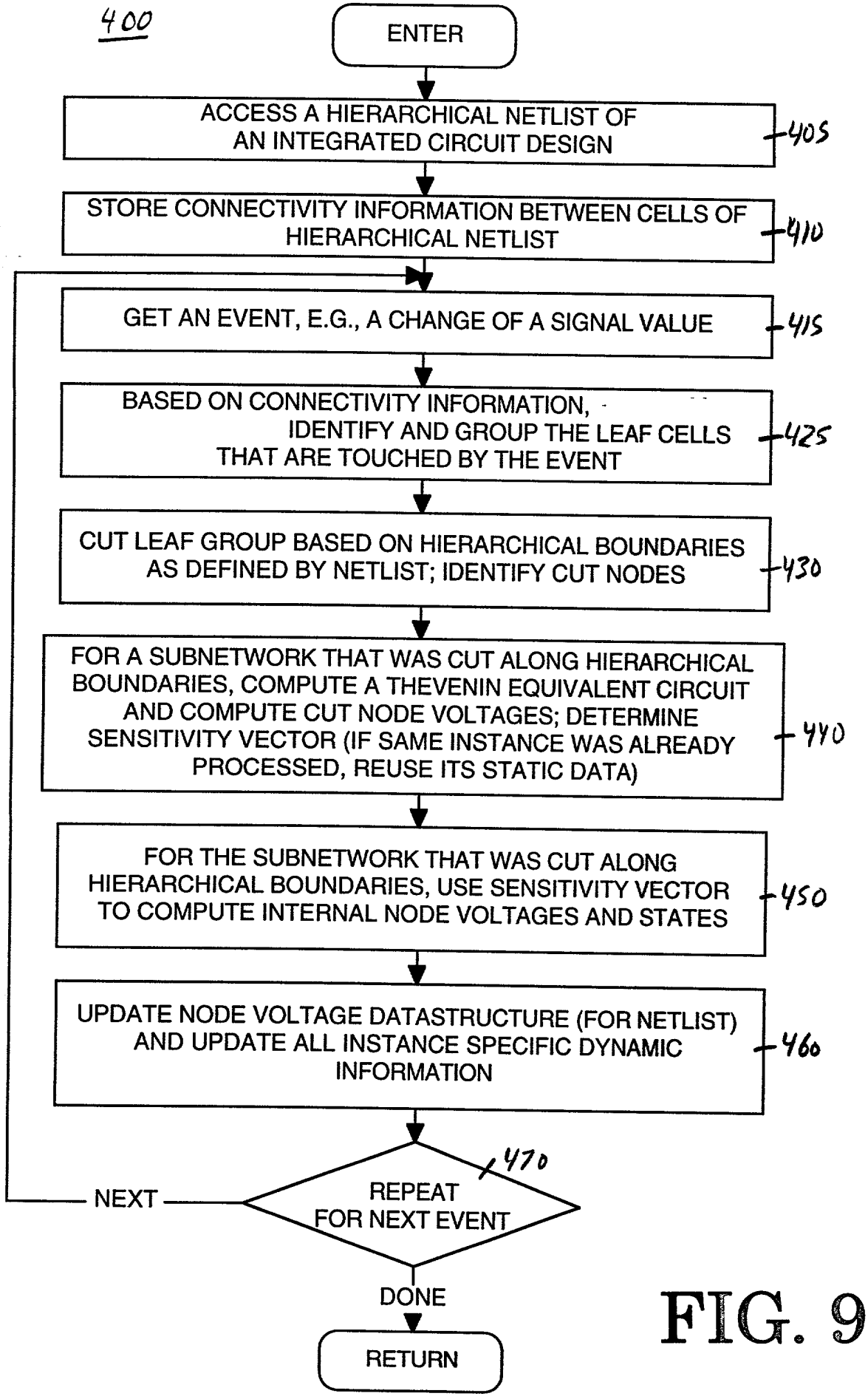
400
ENTER
ACCESS A HIERARCHICAL NETLIST OF AN INTEGRATED CIRCUIT DESIGN
405
STORE CONNECTIVITY INFORMATION BETWEEN CELLS OF HIERARCHICAL NETLIST
410
GET AN EVENT, E.G., A CHANGE OF A SIGNAL VALUE
415
BASED ON CONNECTIVITY INFORMATION, IDENTIFY AND GROUP THE LEAF CELLS THAT ARE TOUCHED BY THE EVENT
425
CUT LEAF GROUP BASED ON HIERARCHICAL BOUNDARIES AS DEFINED BY NETLIST; IDENTIFY CUT NODES
430
FOR A SUBNETWORK THAT WAS CUT ALONG HIERARCHICAL BOUNDARIES, COMPUTE A THEVENIN EQUIVALENT CIRCUIT AND COMPUTE CUT NODE VOLTAGES; DETERMINE SENSITIVITY VECTOR (IF SAME INSTANCE WAS ALREADY PROCESSED, REUSE ITS STATIC DATA)
440
FOR THE SUBNETWORK THAT WAS CUT ALONG HIERARCHICAL BOUNDARIES, USE SENSITIVITY VECTOR TO COMPUTE INTERNAL NODE VOLTAGES AND STATES
450
UPDATE NODE VOLTAGE DATASTRUCTURE (FOR NETLIST) AND UPDATE ALL INSTANCE SPECIFIC DYNAMIC INFORMATION
460
REPEAT FOR NEXT EVENT
470
NEXT
DONE
RETURN

FIG. 9

Patent Application

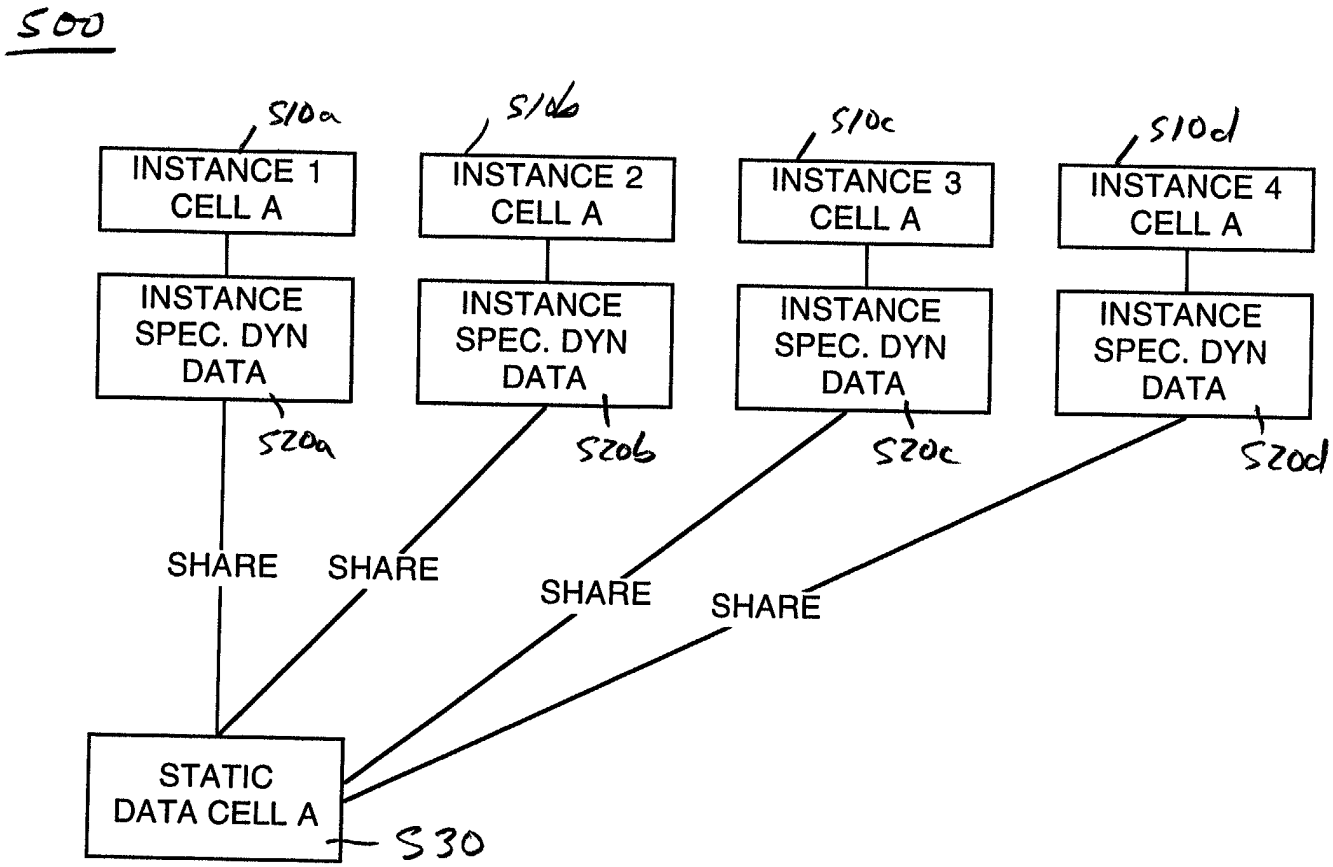

FIG. 10